Design and Implementation of a Graphical Computer Adventure Game

An Honors Thesis (HONRS 499)

by

Karen M. Woznick
Timothy G. Zoch

Thesis Advisor
Dr. Michael McGrew

J. Michael McGrew 5/6/98

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Purpose of Thesis

Computers are increasingly becoming a large part of nearly every American's life. Applications such as WordPerfect, Microsoft Office, and others have helped shape this growing interest; however computer games draw the largest audiences to the computer. Games have been fun and entertaining to people of all ages in the past years. In this tradition, we have designed a computer game of our own by emulating a real-world software company. As we worked through the planning, development, and testing phases of production, we learned to program efficiently in a graphical setting, work with deadlines, be creative, and cooperate with other members of our group.

We successfully designed a graphical adventure game and demonstrated it to other students. In addition, we have written documentation to explain each aspect of the game including each form, class, and user control. This documentation is included in the following text.

Chapter One

Introduction

Introduction

Sword of Destiny was born of the ideas of several people. It found its origins on a cool October evening when someone came up with the idea of "let's get together and write a computer game". This game, like life itself, grew in an evolutionary process. It started out as a vague idea and grew and developed into the finished product that you have in your hands today. In between it has grown, matured, and gone from something small into something that we hope you find to be a very enjoyable game to play.

In addition to the game itself growing and maturing, we as well grew and matured. We learned a great deal about planning out a fantasy world as well as the computer program that would implement it. We also extensively improved our programming skills in Visual Basic 5 and our graphical design skills in Adobe Photoshop 4. We learned to work as a group, use each other to shape ideas, and accept compromise, for the greater good of the project.

We have completed this project with a revised scope and goals, but to our satisfaction and to that of those who have played our game. We never lost the original ideas, but learned to tone them down and convert them into specific computer code. We leave this project with greater programming and creative competency and a sense of pride in our accomplishment.

Game Background

During a long meeting, many ideas for the story were discussed and narrowed down into the world and story we finally used in the game. Not all the details were decided, and some of the details were later changed, but the main ideas were agreed upon before the first lines of code were written.

We wanted a diverse but fairly small world in which the player could roam and explore at will. We originally considered have two warring countries, but later we discarded all political boundaries and influences and settled on a single enemy. We also considered having a time constraint in the game, but then decided to just have the enemy wait until whenever the player reached the point where he was ready to fight him.

Finally, we decided what the items that the player was searching for were, and what they would be used for. Then, we decided where each of the items would be located and how the player would obtain them. This is the result:

1.) **Dagger** **Monastery**
The player obtains the dagger from the Abbot before the game begins.

2.) **Gem** **Golem**
The player must kill the golem to obtain the gem from the golem's forehead.

3.) **Crosspiece** **Pub in desert city**
The player must buy the crosspiece from the bartender.

4.) **Gem** **Waterfall**
The player must step onto the tile where the waterfall is located to retrieve the gem.

5.) **Pommel** **Barbarian Leader**
The player must kill the Barbarian Leader to take the pommel from around his neck.

6.) **Hilt** **Hermit's Isle**
The player receives the hilt from the hermit by talking to him.

7.) **Scabbard** **Abandoned Castle**
The player must step onto the tile where the castle is located to retrieve the scabbard from the ruins.

Chapter Two

The Basic Ideas

Graphical User Interface

The first specific programming part to design was the GUI – the graphical user interface. This is what the user - the person playing the game- sees on the computer screen and what objects the user can manipulate, such as a list or combo box. A graphical user interface differs from a textual user interface in two ways. First, in a GUI, it is the user that directs the program; the program responds to the user's input. In a textual interface, the program prompts the user for input; the user reacts to the program. Second, in a textual user interface, there is only one source of input - at the prompt - and input only comes from the keyboard. Think of the DOS prompt. However, in a GUI, there may be many sources of user input - command buttons, text boxes, etc., and the user can manipulate them using the keyboard or the mouse.

After several revisions, we finalized the structure of our main viewing screen that contains the following elements:

1. MapGrid
2. Character Picture
3. Health Bar
4. Fatigue Bar
5. Equipment List
6. Skills List
7. Eye Button
8. Talk Button
9. Get Button
10. Attack Button
11. File Button
12. Time Counter

1. MapGrid --- The mapgrid will contain a seven by seven grid of terrain pictures so the player can constantly see where he or she is. On this map will also be other characters such as a traveling minstrel and towns which can be entered.
2. Character Picture --- This will be a picture that the player chose to represent his character at the beginning of the game. When it is clicked on, the picture will disappear and a small will appear showing the character's statistics, such as age, height, weight, armor rating, etc.
3. Health Bar --- This will be a progress bar from zero to the player's maximum hit points showing the amount of life (hit points) the player currently has.
4. Fatigue Bar --- This will be a progress bar from zero to the player's maximum fatigue points showing the player's current fatigue level. The higher the better; as fatigue decreases, the player becomes more tired.
5. Equipment List --- This will be a list box showing what equipment is currently being held by the character, such as clothing, weapons, or food.
6. Skills List --- This will be a list box showing what skills the player currently knows. These may be selected and used at any time.
7. Eye Button --- After clicking on this button, when an item in the inventory is selected, a message box will appear stating what the item is.

8. Talk Button --- After clicking on this button and clicking on an appropriate character on the map, the character will give the player some information via message boxes.
9. Get Button --- After clicking on this button and clicking on an item in the equipment list, the item will be removed from the player's inventory.
10. Attack Button --- After clicking on this button and clicking on an appropriate character on the map, a new screen will appear in which a fight will ensue between the two characters.
11. File Button --- When this button is clicked, a small screen will appear with the options to save the current game, load a new game, cancel and return to the game, or exit the game.
12. Time Counter --- This will be activated by various actions during the game, such as: use of skills, movement, combat, and other time dependent actions. These activities will have a time value associated with them that will relate to the time passing in the game. How much time passes will then be shown by the time counter.

Combat System

The combat system is a very complex element of the game. It involves dealing with many variables, often all at once. It has to take into account what the monster is doing, what the player is doing and how to determine who gets to do what to whom when. A lot of time and thought went into planning the system. Even more went into testing the system once it was developed.

The combat system depends heavily on modified values to help determine an action at any given time. The following is a table of positive and negative bonuses applied towards different aspects of the combat system based on four statistics in the game.

Statistic	Bonus Modifier	Statistic	Bonus Modifier
1	-5	16	1
2	-4	17	1
3	-3	18	2
4	-3	19	2
5	-3	20	2
6	-2	21	3
7	-2	22	3
8	-2	23	3
9	-1	24	4
10	-1	25	4
11	-1	26	4
12	0	27	5
13	0	28	5
14	0	29	5
15	1	30	6

Whenever a bonus to a statistic is applied it uses the following table. 12-14 are the low ends for average and as such, apply no modifier. Anything above or below that applies an appropriate modifier whether it be to damage (strength) or hit roll (agility). Health also affects hit points and fitness affects fatigue according to this chart.

Evade

Evade is a unique idea for the combat system. It adds a sense of realism to the game by determining whether or not you are hit by a number, differing from armor. Evade is determined by the player's agility score added to a base of 20 evade points. Evade tends to decrease as a person gets more fatigued.

Initiative

A random number generated between one and twenty and the addition of any bonus modifiers from statistics such as Agility and possible equipment modifiers determines initiative. Initiative selects who gets the first attack in any given round of combat.

The Beginning

The Attack loop begins by determining whether or not a hit has occurred, this is done by the following formula: (hit roll + hit modifiers) compared to (evade * (fatigue points / 100) <this number will be a float) if the hit is better than or equal to the evade, then the person doing the hitting connects for damage. The other case is that the swinger misses. If this occurs, the combat turn is over.

Damage

If a hit occurs, the damage subroutine is called. A digit is passed into the subroutine to determine the level of attack that will occur. A one denotes a light attack, a two, a medium level attack, a three is a heavy attack.

All of the attack levels are based of the medium attack. The medium attack does base damage of the damage roll plus any damage bonuses. The light attack does half the damage of the medium attack, but requires fewer fatigue points to initiate. The heavy attack spends the most fatigue points (about one quarter) but also does the most damage (double the amount of the medium attack). All attacks are subtracted from the defender's armor.

Fatigue points are expended on each attack. The light level attack expends 3 points. The medium attack expends 15 points. The heavy attack is the most devastating to your ability to move, draining 25 fatigue points or a full quarter of your possible fatigue points.

A sample: Joe vs the goblin
The goblin has an evade of 24. Joe has an evade of 17.
Joe swings at the goblin, rolling a 23 for his hit. Joe misses and his turn ends.
The goblin rolls a 20. This hits Joe. The goblin "selected" a medium level attack.
So the goblin then rolls for his damage (he does 45 points). Joe's armor of 35 absorbs all but 10 points of damage, which Joe has to take.
Battle would then continue until someone flees or someone is dead.

Modification

After some testing and further work, there were changes made to the attack loop. One of the first modifications that was made was in making a change in the way that evade is calculated. The original formula for assessing evade as affected by fatigue was rather harsh. Alterations were made to the algorithm to correct that error. The algorithm was changed to:

EVADE= EVADE – ((100+FATIGUE/200)*EVADE).

This made the loss of fatigue less drastic to the player's or monster's ability to avoid attacks than it had been before.

Another less drastic modification was made to the damage dealing system. The middle level attack was not changed. However, slight adjustments were made to the heavy level attacks. The heavy attack now follows an (2 * damage dice) + bonus damage algorithm. The reasons for these alterations are to control damage to make sure that id

did not get out of hand, which it would have done in the case of the heavy attack were the damage modifier to be added before multiplying by two.

Armor

Armor is directly related to damage. Armor allows a character to absorb damage that is dealt from a monster, and vice versa. The original idea was that armor would absorb a number of points of damage equal to the armor rating the player had. On further reflection and discussion, it was decided that armor would absorb a percentage of the damage dealt up to a maximum of 95 percent for a perfect 100 armor rating.

ARMOR RATINGS CHART

Armor Name	Rating	Affect Evade	% Absorbed
Buckler	6	-1	6%
Small Shield	12	-2	12%
Large Shield	20	-4	20%
Plate Boots	15	-3	15%
Helmet	15	-3	15%
Leather Armor	10	-4	10%
Chain Mail Armor	20	-5	20%
Plate Mail Armor	30	-6	30%
Full Plate Armor	45	-8	45%

Note: The heavier the armor, the greater the negative affect on evade. The reason for this is that the heavier armors would slow down a real person, but they do offer better protection. A heavily armored knight may get hit more often, but does not take nearly the damage from the attack that a person in cloth clothing would. Armor lore helps to negate this. As the player learns to use armor better, the loss to evade is negated.

Skills In Combat

Many skills are utilized in combat. Most work without a need to be called. These improve the chances to hit, improve evade, reduce the fatigue expended, or add damage to the attack. There are, however, three skills that must be called during combat. The three are special attack and defense forms that must be called.
These three are Punch, Kick, and Parry.

Punch and kick are very similar. Both are physical attacks that take a combat turn to execute. They both deal damage slightly more a medium level attack would do and expend a little less fatigue than the medium level attack does. This gives the player a chance to inflict slightly better damage than a regular attack would without spending many valuable fatigue points to deal the damage.

Parry is a lot like defend. While in parry mode, the player assumes a defensive stance. This provides a better chance to avoid an attack. Unlike defend however, the player does not benefit from a recovery of fatigue points while in battle. The reason for this is that while parrying, there is a slight chance of mounting a counter attack that cannot be avoided by the enemy.

Defend

Defend allows the player to go to a defensive style of combat. While in a defensive stance, the player has less of a chance of being hit. Being defensive also allows the player to "rest" during combat. This "rest" allows the player to regain a few lost fatigue points that would usually not be regained until after the battle is over.

Escape From Battle And Pursuit

Every once in a while, a battle is going to go badly, and the player needs a way to escape. Flee allows the player a 50% chance of getting out of combat. Monsters may also attempt to flee as well and also have the same 50% chance to get away. Both the monster and the player have the option to pursue the fleeing counterpart. By choosing to pursue, there is a 50% chance that the opponent will not escape.

Monsters

A "monster" in game terms is any creature with which the player may engage in combat. Monsters can come in many shapes and sizes from goblins to dragons. These monsters are very different from one another, but they are all based off of the same template. The template and brief description of the items in the template follows. A more detailed description of those items that need it follows the template.

Name	Monster's Name
Total Hit Points	Total number of hit points the monster has
Current Hit Points	Amount of hit points the monster has left
Fatigue Points	Fatigue points the monster has to use
To Hit	Bonus to the hit roll
To Damage	Bonus to the damage roll
Light %	Percent chance that the monster will use a light attack
Medium %	Percent chance the monster will use a heavy attack
Drift	Factor of how the monsters attacks drift when it takes damage
Has Special	Does the monster have a special attack?
Special	The special that the monster has
Special %	Percent chance the monster will use the special
No Flee	How often the monster will try and prevent the player from fleeing
Flee %	Percent at which the mob's first priority is escape
Armor	Monster's ability to absorb damage
Evade	Monster's ability to avoid attack
Damage	Number of "sides" on the dice rolled to determine the amount of damage done
Damage Dice	Number of dice rolled in determining damage.

MonsterType	Type of monster

Hit points are the total life force that the monster possesses. The current hit points of the monster indicate the amount of life the monster has left. At the beginning, current hit points and total hit points are equal, as the monster takes damage, the current hit points will drop, indicating that the monster has taken damage. The system works similarly for the player, whose hit points are indications of the total amount of life the player has remaining.

Fatigue points illustrate how tired the monster gets during the battle. The more fatigue points expended, the more tired the monster is. As the monster grows tired, it will not be able to defend itself as well as when it was fresh, also, it will not be able to hit as hard as when the battle started.

Light and heavy attack percentages are used to determine the likelihood that the monster will use that level of attack in combat. By taking these two percentages, adding them together, and subtracting that total from one hundred, the percentage of the medium level attack is obtained. This allows the same latitude of level of attack to both the player and the monster. Drift is the way that a monster's attacks will drift as it loses hit points. Drift is in a range from positive to negative 10. If a monster has a 5 drift, then its attacks, when under 50 percent of its hit points, would drift 5 percent better towards the heavy and medium attack. If the five had been negative, then the drift would have been towards the light and medium attacks.

Next, there are the 3 template slots used for specials. Specials are special attack forms that the monster may have, such as a dragon's fire breath, a really good fighter's hay maker punch, and the like. When used in attack, the special takes one attack turn to use.(in effect serving as the monster's attack for that round). The Has Special slot in the template is a simple binary digit. One indicates that the monster has a special attack form, a zero indicates that the monster has no special attack form and the other special slots are ignored. The Special slot indicates the special that the monster possesses and the special percentage indicates the likelihood of the monster using the special at any given time during combat.

The final area of interest is the attack and how monsters deal with it. Monsters have evade and armor ratings just like the players do. These statistics are used just as they are by the player. Evade helps to avoid attacks and armor mitigates the damage done by an attack. The way the monster determines the damage it does is slightly different from that of the player. The "To Hit" field provides the monster's bonus as it attempts to hit the player . The monster has a field called damage. This is the factor that determines how much damage the monster might do. For example, a monster with a damage of 4 would do 1 through 4 points of damage, whereas a monster with a 10 for damage would do one through 10 points of damage. The damage dice number is the number of times that damage is rolled. So, if a monster had a 3 dice number and a 2 damage number, the monster would "roll" 3 times and get a result of between one and two on each roll. These rolls would then be added up and the entire number done is the damage inflicted. It is to this number that the to damage modifier is added (either before or after modification for a light or heavy attack depending) to provide the total amount of damage done to the player by the monster.

MonsterType reflects the type of monster encountered. There are four types of monsters in the game. The type of monster helps to determine what type of treasure the monster may give the player when the monster is killed. The value may also influence various skills, such as animal lore.

Chapter Three

Description of the Code

FirstScreen

This is a simple screen showing a welcome message and a menu with options to start a new player, load a player, or exit. It is the first screen a player will see, although it is not the first that is loaded. It also reads in all of the item information from the item database.

ExitCommand_Click

Unloads all currently loaded forms and ends the program.

Form_Load

Calls **PaintBack** and centers labels and buttons on the screen.

Initialize_Items

Reads in all the items from a database into a global item array.

LoadPlayerCommand_Click

First calls **Initialize_Items**, then loads a player from a file and unloads the current form.

NewPlayerCommand_Click

First calls **Initialize_Items**. Then calls **StoryForm**, **NewPlayerForm**, and **SkillsForm**. Each of these forms waits for the previous one to be unloaded before it is loaded. Unloads **FirstScreen** form.

PaintBack

Uses an embedded for loop to paint the background picture to all of the form.

StoryForm

This is a simple form used to display the introductory story. Since the story is too long to fit onto one screen, it is divided into 3 parts, with a button at the bottom of each page for the player to continue to the next page.

Form_Load

This simply sets up the location of the text box and buttons, and paints the form picture to the entire screen. At this time, only the page2 button is visible.

OkayButton_Click

When the okay button is clicked on, the form is unloaded, allowing the main game form to be visible.

Page2_Click

This sets the page2 button to not visible, loads the second page of the story, and sets the page3 button to visible.

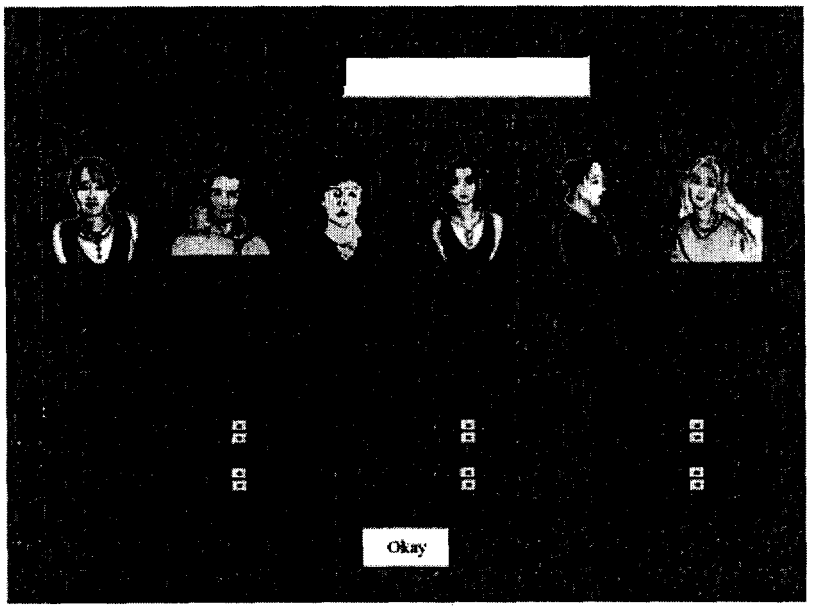
Page3_Click

This sets the page3 button to not visible, loads the third page of the story, and sets the okay button to visible.

NewPlayerForm

This is the form that is loaded first if the player chooses the new player option from the **FirstScreen**. Here he will choose a name and picture for his character, and set his personal statistics.

A picture of the **NewPlayerForm**:



Global Variables:

Byte **Stats_Number**

The following six variables are used to determine whether the player is increasing or decreasing each statistic.

Byte **LastStrengthValue**
Byte **LastAgilityValue**
Byte **LastFitnessValue**
Byte **LastHealthValue**
Byte **LastIntelligenceValue**
Byte **LastPersonalityValue**

FemaleImage1_Click

Sets the frame to surround the selected image. Sets the player's picture to "female1.gif". Sets the player's sex to female.

FemaleImage2_Click

Sets the frame to surround the selected image. Sets the player's picture to "female2.gif". Sets the player's sex to female.

FemaleImage3_Click

Sets the frame to surround the selected image. Sets the player's picture to "female3.gif". Sets the player's sex to female.

Form_Load

Sets the player's image to "temp" so that at the end we can tell whether or not he has chosen a picture. Sets the **GameForm.cur_x** and **GameForm.cur_y** to the appropriate load position for a new player. Centers the labels and images and paints the background with the form's picture. Initializes StatPointsLabel to 40 and sets the LastStrengthValue, LastAgilityValue, LastFitnessValue, LastHealthValue, LastIntelligenceValue, and LastPersonalityValue to the current values on the labels.

MaleImage1_Click

Sets the frame to surround the selected image. Sets the player's picture to "male1.gif". Sets the player's sex to male.

MaleImage2_Click

Sets the frame to surround the selected image. Sets the player's picture to "male2.gif". Sets the player's sex to male.

MaleImage3_Click

Sets the frame to surround the selected image. Sets the player's picture to "male3.gif". Sets the player's sex to male.

OkayCommand_Click

When the new player clicks the okay button, several checks are made before the new character is set up. First a check is made to see whether there is any test in the name text box. If not, a message is displayed asking the new player to enter a name for his character. Then, a check is made to see if the image name is still "temp". If so, then the player has not chosen a picture for his character, so a message is displayed asking him to do so. Then a check is made to see if the StatPointsLabel.Caption is zero. If it is not zero, then the player has not finished distributing his statistics points, so a message is displayed asking him to do so. Once all of these conditions are satisfied, the new player's character is set up. His name and statistics are set to those displayed on the screen, and then several functions are called: **Calculate_HitBonus**, **Calculate_DamageBonus**, **Calculate_FatigueBonus**, and **Calculate_HitPointsBonus**. Then the player's evade is set to twenty plus his agility rating, and his armor is set to one, since he is not wearing any armor. A zero can not be used because it would cause division by zero errors in the attack functions. Then, the following items are added to the player's inventory: a monk's robe, a pair of sandals, the special dagger, a loaf of bread, a hunk of cheese, and some wine. Then, the monk's robe is set to the player's body location, the sandals are set to the player's feet location, and the special dagger is set to the player's wielded position. This is used to show which items are currently being used by the player. A special item called nothing is set to the player's head, shield, and about body, to avoid future errors that might be caused if the player is not wearing anything in these positions. The new player's money is then set to 5 silver pieces, his bandaged, poisoned, performed, and

begged flags are all set to zero. Then his height and weight are set according to whether he has chosen to be male or female. Finally, the form is then unloaded.

The rest of the subroutines are similar in implementation, one for each of the six statistics.

StrengthPoints_Change

First compares **LastStrengthValue** to the current **StrengthPoints.Caption**. If **LastStrengthValue** is less that the **StrengthPoints.Caption**, then a check is made to determine what range the value of the **StrengthPoints.Caption** is in. If it is between eight and nineteen, then a one is subtracted from the **StatPointsLabel.Caption**. Then a check is made to see if the **StatPointsLabel** is now less than zero. If so, the player has run out of points to distribute, so the one is added back on and the **StrengthPoints.Caption** is set back to the **LastStrengthValue**. If the **StrengthPoints.Caption** value is between eighteen and twenty-three, the process is repeated with a two. If the **StrengthPoints.Caption** value is between twenty-two and twenty-seven, the process is repeated with a three. If the **StrengthPoints.Caption** is greater than twenty-six, the process is repeated with a four. This way, the player can easily raise his statistics in the beginning, but to raise a statistic to a very high value would require most of the available points.

If the **LastStrengthValue** is greater than the **StrengthPoints.Caption** then a check is first made to determine whether the **StatPointsLabel** equals forty. If so, nothing happens. Otherwise, a check is made to determine which range the **StrengthPoints.Caption** is in. Depending on which range, a different number of points is added back to the **StatPointsLabel.Caption**. If the **StrengthPoints.Caption** is between seven and eighteen, one point is added on, between seventeen and twenty-two, two points are added, between twenty-one and twenty-six, three points are added, and between twenty-five and thirty, four points are added. Finally, the **LastStrengthValue** is set to the new value of the **StrengthPoints.Caption**.

A picture of the **NewPlayerScreen**:

SkillsForm

This simple form is used to allow the new player to distribute a number of points to various skills. These basic skills are used to get the player started in the game, allow him to make money, and enable him to learn more advanced skills.

Global Variables:
These variables are used to keep track of whether the player is increasing or decreasing the particular skill.

Byte **LastAnimalLoreValue**
Byte **LastArcheryValue**
Byte **LastBrawlingValue**
Byte **LastCampingValue**
Byte **LastChoppingValue**
Byte **LastCommerceValue**
Byte **LastFireBuildingValue**
Byte **LastFishingValue**
Byte **LastForagingValue**
Byte **LastHikingValue**
Byte **LastHuntingValue**
Byte **LastItemLoreValue**
Byte **LastSocialValue**
Byte **LastStealthValue**
Byte **LastWrestlingValue**

Form_Load

This sets up the positions of the labels and initializes all the global variables. It also paints the background with the form's picture.

OkayButton_Click

First a check is made to see whether the SkillsPointsLabel is zero. If it is not zero, then the player has not distributed all of his points, so an appropriate message is displayed. If it is zero, then the player's skill ratings are set to those on the labels, and then the form is unloaded.

Each of the rest of the subroutines on this form follow the same layout. There is one subroutine for each of the skills on the form.

AnimalLorePoints_Change

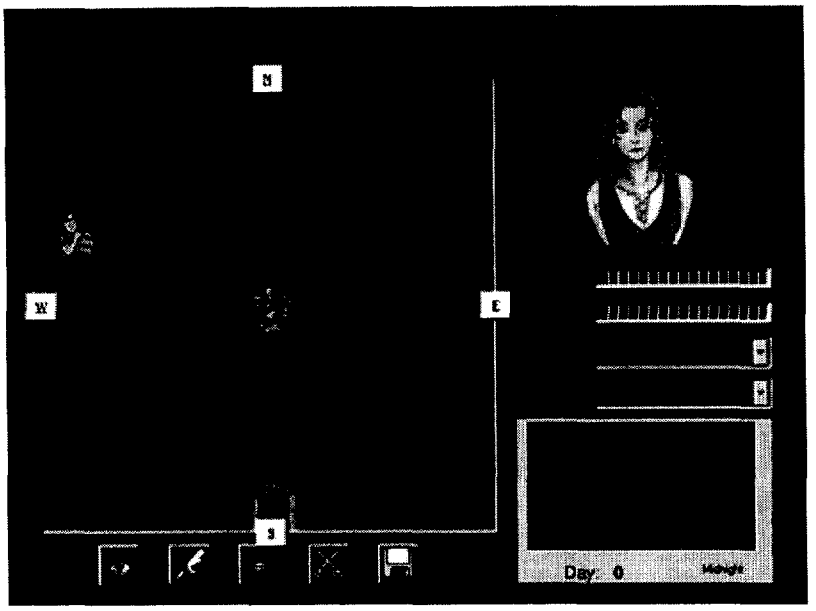
First a check is made to see if **LastAnimalLoreValue** is greater or less than the **AnimalLorePoints.Caption**. If it is less (meaning that the player has increased the **AnimalLorePoints.Caption**), then a one is subtracted from the **SkillsPointsLabel.Caption**. If the **SkillsPointsLabel.Caption** is less than 0, then a one is added back and the **AnimalLorePoints.Caption** is set back to the **LastAnimalLoreValue**. Otherwise, if the **LastAnimalLoreValue** is greater than the **AnimalLorePoints.Caption** (meaning that the player has decreased the

AnimalLorePoints.Caption), then a one is added to the **SkillsPointsLabel.Caption**, unless it is already 250. At the end of the subroutine, the **LastAnimalLoreValue** is set to the new **AnimalLorePoints.Caption**.

GameForm

This is the main part of the game. This form is loaded first and every other form and function is called from it. It shows the game map, item and inventory arrays, the player's picture etc. See the section on the GUI for more details.

A picture of the **GameForm**:



Global Variables:

String **State** - Keeps track of which command button was pushed last. This enables the **Map_Click** subroutine to determine which event should now occur.

Integer Map which is a 100 * 100 matrix to keep track of the game map.

Integers **Cur_X** and **Cur_Y** which keep track of the current location on the map.

Boolean Fire to determine whether the player has built a fire.

Add

This function adds a new item to both the player's inventory and the equipment combo box on the form. This way, both lists are exactly the same and an item in the inventory can be accessed by using the selected index from the equipment box. This function also checks to see if the player's inventory is full (100 items).

Appraising

First checks to see if the player is holding something, then calculates a value for the item by examining the item's value and the player's skill at appraising. Also, there is a skill check to determine whether the player's skill at appraising improves, which is done by calling the **Improve_Skill** function.

ArrowButton_Click

Sets the carving menu to invisible, checks to see if the player has enough fatigue points, and makes a skill check to determine whether the player was successful at carving an arrow. If the player was successful, the wood is removed from his inventory and an arrow placed there. If the player is unsuccessful, the wood is also removed from his inventory and it is determined whether the player's skill at carving was improved, which is done by calling the **Improve_Skill** function. Whether or not the player was successful, fatigue points are subtracted and time passes, although to a different degree.

Attack_Click

Changes the **State** to "attack" if this same button was not previously pushed. Else it cancels the last click and returns **State** to normal. Also changes the mousepointer to the appropriate icon.

Bandaging

First it is determined if the player is holding a first aid kit, whether he has enough fatigue points, and if he has previously bandaged that day. If he satisfies these conditions, a number is calculated based on the player's skill at bandaging and a random number between 1 and 6. This number is then added on to the player's current hit points, with a maximum of 100. Also, there is a skill check to determine whether the player's skill at bandaging improves, which is done by calling the **Improve_Skill** function. Whether or not the player was successful, fatigue points are subtracted and time passes, although to a different degree.

BenchCommand_Click

Sets the carpentry frame to invisible. A check is made to see if the player has enough fatigue points and a skill check is used to determine if the player was successful at making a bench. If he was successful, the wood is removed from his inventory and a bench is placed there. If he was unsuccessful, the wood is removed from his inventory and he is given a chance to improve his skill at carpentry, which is done by calling the **Improve_Skill** function. Whether or not the player was successful, fatigue points are subtracted and time passes, although to a different degree.

BerriesButton_Click

Erases forage frame from screen. Checks to see if the player has enough fatigue points and makes a skill check to see if player was successful at foraging for berries. If player was unsuccessful, a messagebox will appear telling him so and he will be given an chance to improve his skill, which is done by calling the **Improve_Skill** function. If player was successful, the appropriate amount of berries are added to his inventory. Whether or not the player was successful, fatigue points are subtracted and time passes, although to a different degree.

The message displayed when the player has successfully foraged for berries:

You have successfully foraged some berries.

Okay

BowCommand_Click

Sets the carpentry menu to invisible, checks to see if the player has enough fatigue points, and makes a skill check to determine whether the player was successful at making a bow. If the player was successful, the wood is removed from his inventory and a bow placed there. If the player is unsuccessful, the wood is also removed from his inventory and it is determined whether the player's skill at carpentry was improved, which is done by calling the **Improve_Skill** function. Whether or not the player was successful, fatigue points are subtracted and time passes, although to a different degree.

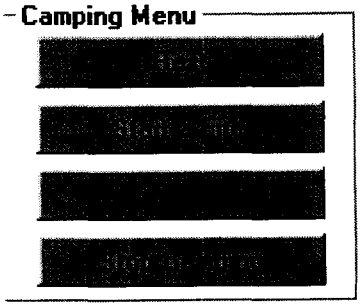
Butchery

Checks to see that the player is holding a carcass and if he has enough fatigue points. If so, a skill check is performed to determine if the player was able to butcher the carcass. If he is unsuccessful, he is given a chance to improve his skill at butchery, but the carcass is removed from his inventory. If he is successful, meat is added to his inventory, and he is given a chance to skin the carcass. If he chooses to skin the carcass, a fatigue check and a skill check are performed. If he is successful, a fur pelt is added to his inventory. Otherwise, he is given a chance to improve his skill at skinning, which is done by calling the **Improve_Skill** function. The carcass is then removed from his inventory. Whether or not the player was successful, fatigue points are subtracted and time passes, although to a different degree.

Camping

First checks to see if player can camp at his current location. If he can camp there and he successfully passes a skill check, the player's picture is removed from the map and replaced by a tent. Then a menu appears with options for resting, building a fire, and cooking. If the player fails the skill check, he is given a chance to improve his skill, which is done by calling the **Improve_Skill** function. Although in reality a person expends fatigue when setting up a camp, we discovered that if we require fatigue points when camping, a player may end up with no fatigue points left and no way to recover them, since he would be unable to camp and then rest. Therefore, we made camping a skill that requires no fatigue points.

The camping menu:



CancelButton_Click

Returns the player to the game forms and sets the disk options menu to not visible.

CancelCarpentryButton_Click

Sets the carpentry menu to not visible.

CancelCarvingButton_Click

Sets the carving menu to not visible.

CancelForageButton_Click

Sets the foraging menu to not visible.

Carpentry

Checks to see if the player is holding some wood, then displays a menu with options for crafting several different items.

Carving

Checks to see if the player is holding some wood, then displays a menu with options for carving several different items.

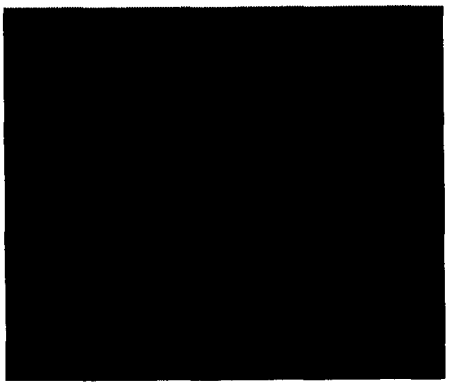
ChairCommand_Click

Sets the carpentry menu to not visible, checks to see if the player has enough fatigue, then makes a skill check to see if the player successfully crafted a chair. If so, the wood is removed from the player's inventory and replaced with a chair. If the player is unsuccessful, the wood is removed and the player is given a chance to improve his skill at carpentry, which is done by calling the **Improve_Skill** function. Whether or not the player was successful, fatigue points are subtracted and time passes, although to a different degree.

Character_Click

Character picture is removed and the statistics label is shown. All player statistics are updated to reflect current status.

Here is the Statistics Label:



See **Statistics_GotFocus** for reversal.

Chopping

First checks to see if the player's location has trees, then checks to see if the player has enough fatigue points, then checks to see if the player is wielding a bladed weapon. That satisfied, the tree will always be successfully chopped down, but the time that passes will depend on the player's skill. Then, if a player does not succeed in passing a skill check, he is given the chance to improve his skill at chopping, which is done by calling the **Improve_Skill** function.

Here is the message that is displayed when the player is finished chopping down the tree:

You have finished chopping down the tree.

Okay

CookCommand_Click

Calls Cooking when the player clicks on the cook button.

Cooking

Checks to see if the player knows both firebuilding and camping, then checks to see if the player is holding meat and if he has enough fatigue points. After successfully passing a skill check, the meat is removed and replaced by some dinner. If the skill check is not passed, the meat is removed from the player's inventory and he is given a chance to improve his skill at cooking, which is done by calling the **Improve_Skill**

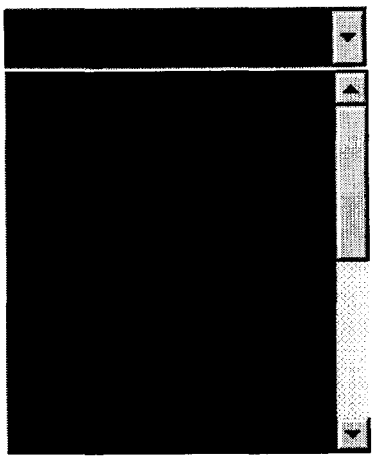
function. Whether or not the player was successful, fatigue points are subtracted and time passes, although to a different degree.

Disk_Click

Makes the disk options menu visible.

Equipment_Click

Determines the type of item that was selected and acts appropriately. If the item is food, it is removed from the player's inventory and adds 2 points each to the player's fatigue and hit points. If the item is clothing or armor, the correct body location is set to that item. **Check_Armor** is then called to recalculate the player's armor rating and evade. If the item is a weapon, then the player's wielded flag is set to that item.



Eyeball_Click

Changes the State to "eye" if this same button was not previously pushed. Else it cancels the last click and returns **State** to normal. Also changes the mousepointer to the appropriate icon.

Fire_Building

First checks to see if the player is at a location suitable for building a fire and if he has enough fatigue points, then does a skill check with an appropriate modifier for the terrain. If the player is on any terrain with snow, there is a negative fifteen modifier to his fire building rating, meaning that fifteen is subtracted from his rating when comparing it to a random number for a skill check. If the player is on swamp terrain, there is a negative ten modifier. If the player is on any other terrain, there is no modifier. If the player fails a skill check, he is given a chance to improve his skill, which is done by calling the **Improve_Skill** function. Whether or not the player was successful, fatigue points are subtracted and time passes, although to a different degree.

Fishing

First checks to make sure that the player is standing next to some kind of water. Then checks to see if the player is holding a fishing pole and has enough fatigue points.

If all of these cases are true, then a skill check is performed to see if the player successfully catches a fish. If so, the fish is added to the player's inventory and a messagebox is displayed telling him what has occurred. Otherwise, the player is given a chance to improve his skill, by calling the **Improve_Skill** function. Whether or not the player was successful, fatigue points are subtracted and time passes, although to a different degree.

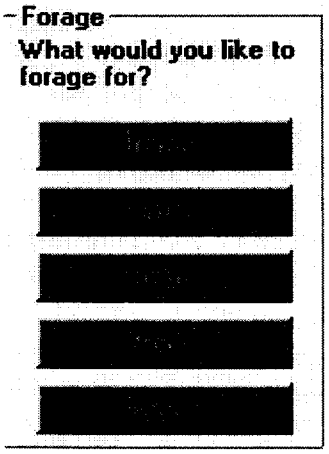
FishingPoleCommand_Click

Determines if the player has enough fatigue points to carve a fishing pole and if he is holding some wood, then performs a skill check to determine whether the player successfully carved a fishing pole. If he is successful, the wood is removed from his inventory and a fishing pole placed there. If the player was unsuccessful, the wood is removed from his inventory and he is given a chance to improve his skill by calling the **Improve_Skill** function. Whether or not the player was successful, fatigue points are subtracted and time passes, although to a different degree.

Foraging

First determines if the player is in an area that allows foraging. If the player can forage in the area, then the forage menu is displayed. Otherwise, a messagebox appears telling him that he can not forage in this area.

The forage menu:



Form_Load

This is the main function for this form. It is also the very first function that is called when the game is run. It initializes the **State** variable to normal and calls **Initial_Setup** to set up the form. Then the game map is set up. Calls **FirstScreen**. Loads the current player to the **cur_x** and **cur_y** coordinates. Loads the player's picture to the Character image box. Sets the value of the health progress bar to the player's

FruitButton_Click

Sets the forage menu to not visible. Checks to see if the player has enough fatigue points. A skill check is performed with a plus thirty modifier to the player's foraging skill rating. If he is successful, some fruit is added to the player's inventory. If he is unsuccessful, he is given a chance to improve his skill by calling the **Improve_Skill** function. Whether or not the player was successful, fatigue points are subtracted and time passes, although to a different degree.

Hand_Click

Changes the State to "hand" if this same button was not previously pushed. Else it cancels the last click and returns State to normal. Also changes the mousepointer to the appropriate icon.

HerbsButton_Click

First, the forage menu is set to not visible. Then a check is made to see if the player has enough fatigue points. Then a skill check is performed with a plus ten modifier to the player's foraging skill to see if the player was successful. If the player is successful, some herbs are added to his inventory. Otherwise, he is given a chance to improve his skill by calling the **Improve_Skill** function. Whether or not the player was successful, fatigue points are subtracted and time passes, although to a different degree.

Hunting

Several checks are made within this function to determine what type of terrain the player is currently on, which results in different actions. First, if the player is standing on a bridge, a messagebox appears telling the player that he can not hunt while on a bridge. If the player is on grasslands, then a skill check is performed with a negative five modifier to the player's hunting skill rating. If the player is on hills, a skill check is performed with a negative twenty modifier to the player's skill rating. If the player if on swamps, a skill check is performed with a negative twenty-five modifier to the player's skill rating. If the player is on trees, a skill check is performed with a plus five modifier. If the player is on desert, a skill check is performed with a negative forty modifier. If the player is on snowy grasslands, a skill check is performed with a negative ten modifier. If the player is on snowy hills, a skill check is performed with a negative twenty-five modifier. If the player is on snowy trees, then a skill check is performed with no modifier to the player's hunting skill rating. If the player is on any other terrain, a messagebox appears telling him he cannot hunt on this terrain. Also, there is a check to see if the player has enough fatigue points. If the player was successful in the skill check, a carcass is added to his inventory. Otherwise, the player is given a chance to improve his skill, which is done by calling the **Improve_Skill** function. Whether or not the player was successful, fatigue points are subtracted and time passes, although to a different degree.

Identify_Item

An item is passed to this function, and an appropriate message is outputted, depending on the type of item and the player's skill at item lore. This means that if the

player's item lore skill rating is high, a more descriptive message is given. If his rating is low, a vague message will be given.

Improve_Skill

This function obtains a random number, then compares the number to twenty. If the number is below twenty, then the player has improved at the skill and a one is returned, where it will then be added to the player's skill. Otherwise, a zero is returned. This is used so that a player will only improve in his skill twenty percent of the time he fails.

Initial_Setup

Sets top, left, height, and width variables for all visible items on the game form, including: MapGrid (picture box), Character (image), Health (progress bar), Fatigue (progress bar), Equipment (combo box), Skills (combo box), Eyeball (command button), Hand (command button), Mouth (command button), Attack (command button), Disk (command button), TimeClock (picture box), and MoveButtons(command buttons).

Initialize_Characters

This function reads in all of the character information into an array, so it can be quickly accessed at any time using an array index.

Learn_Skill

This function differs from the **Improve_Skill** function because it is used when a player is improving their skill by learning from a character, rather than improving once he has failed. As a result, he improves more rapidly when learning from a character. Also, this function incorporates the player's intelligence rating to give a bonus.

MapGrid_Click

Checks the **State** variable and performs task based on the value of **State**. If **State** is "normal" nothing is done.

If **State** is "eye", it will determine what is being pointed to, then display a message box stating what the object is by calling the **Identify_Item** subroutine

If **State** is "mouth", it will determine what is being pointed to, then determine whether it is a character that can be spoken to. If the player can talk to the character, a speechbox will appear containing information that may be useful to the player's quest. Otherwise an error message will appear telling the player that this is not an object that can be spoken to.

If **State** is "hand", it will determine what is being pointed to, then determine if the player can get the item. If the player can get the item, it is placed in the player's inventory. Otherwise, an error is displayed telling the player that they cannot get this item. If the player has selected an item in his inventory, that item is removed from the inventory.

If **State** is "attack", it will determine what is being pointed to, then determine if the character can attack the monster. If the player can attack, the **AttackForm** will appear where the attack will commence. If the player cannot attack, then an error message will be displayed telling the player that they cannot attack this item.

If **State** is "begging", it will determine whether the player is pointing to someone who can be begged from. If so, the **Begging** subroutine on the **TownForm** is called. Otherwise, an error message is displayed telling the player that there is no one there to pickpocket.

If **State** is "pickpocketing", it will determine whether the player is pointing to someone who can be pickpocketed. If so, the **PickPocketing** subroutine on the **TownForm** is called. Otherwise, an error message is displayed telling the player that there is no one there to pickpocket.

After every click on the mapgrid, the mousepointer is returned to normal.

Mouth_Click

Changes the **State** to "mouth" if this same button was not previously pushed. Else it cancels the last click and returns **State** to normal. Also changes the mousepointer to the appropriate icon.

PassTime

Receives an number specifying how many minutes are to pass and increments the **TimeClock** minutes by that number.

Quit_Button

When the quit button is clicked, this subroutine is called and each of the existing forms is unloaded.

RandomNumber

This is a short function that returns a number between one and one hundred, using the function built into Visual Basic that returns a number between zero and one.

Remove

This subroutine removes an item from both the equipment combo box on the form and the player's inventory. It cycles through the player's inventory to remove the empty slot so that the equipment box list and the inventory remain exactly the same.

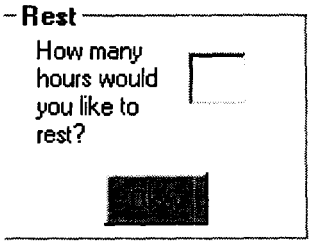
Rest

This subroutine receives a number specifying the number of hours that the player is resting. It calls **PassTime** for that number times sixty to pass the appropriate number of minutes. Then it adds an amount onto the player's fatigue and hitpoints and updates the progress bars on the form.

RestCommand_Click

Removes the camping menu from the screen and displays the rest menu.

The rest menu:



RestOkayCommand_Click

Removes the rest menu from the screen and calls **Rest** with the number of hours that the player specified. Displays the camping menu.

RootsButton_Click

First, the forage menu is set to not visible. Then a check is made to see if the player has enough fatigue points. Then a skill check is performed to see if the player was successful. If the player is successful, some roots are added to his inventory. Otherwise, he is given a chance to improve his skill by calling the **Improve_Skill** function. Whether or not the player was successful, fatigue points are subtracted and time passes, although to a different degree.

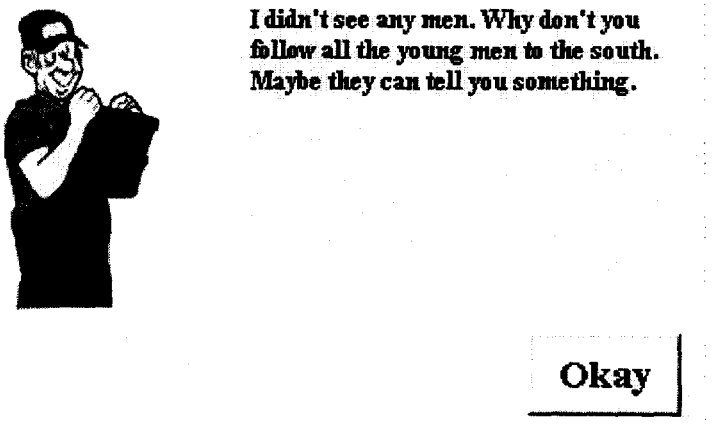
Show_MessageBox

This subroutine receives an image and a string as parameters. It sets the messagebox's image to the image received and the messagebox's label to the string it received. Then it displays the messagebox.

Show_SpeechBox

This subroutine receives an image and a string as parameters. It sets the speechbox's image to the image received and the speechbox's label to the string it received. Then it displays the speechbox.

Here is a sample of a visible speechbox:

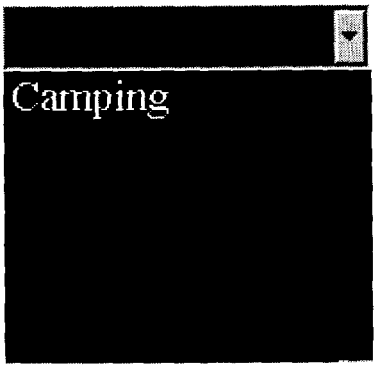


SaveButton_Click

When this button is clicked, the player's information is saved.

Skills_Click

When an item in the skills combo box is selected, this subroutine is called. It determines which skill was selected and then calls the appropriate subroutine.



Skinning

Checks to see that the player is holding a carcass and if he has enough fatigue points. If so, a skill check is performed to determine if the player was able to skin the carcass. If he is unsuccessful, he is given a chance to improve his skill at skinning, but the carcass is removed from his inventory. If he is successful, a fur pelt is added to his inventory, and he is given a chance to butcher the carcass. If he chooses to butcher the carcass, a fatigue check and a skill check are performed. If he is successful, some meat is added to his inventory. Otherwise, he is given a chance to improve his skill at butchery, which is done by calling the **Improve_Skill** function. The carcass is then removed from his inventory. Whether or not the player was successful, fatigue points are subtracted and time passes, although to a different degree.

StartFireCommand_Click

Calls Fire_Building.

Statistics_GotFocus

Returns the statistics display to invisible and sets the character image to visible.

StopCampingCommand_Click

Removes the camping menu from the screen. Replaces the tent icon with the character's icon. Sets the fire variable to false.

Update_Skills

Checks the player's skill rating for a number of skills. The skills with a rating greater that zero are displayed in the skills combo box.

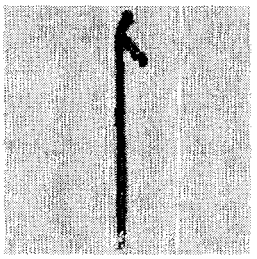
Timer1_Timer

Turns the timer off and calls **Initialize_Characters**.

WalkingStickCommand_Click

Removes the carving frame from the screen. Checks to see if the player has enough fatigue points to carve a walking stick. Then performs a skill check to see if the player was successful at carving a walking stick. If he was successful, the wood is removed from his inventory and a walking stick is added. Otherwise, the wood is removed and he is given a chance to improve his skill by calling the **Improve_Skill** function.

The message displayed when the player has successfully carved a walking stick:



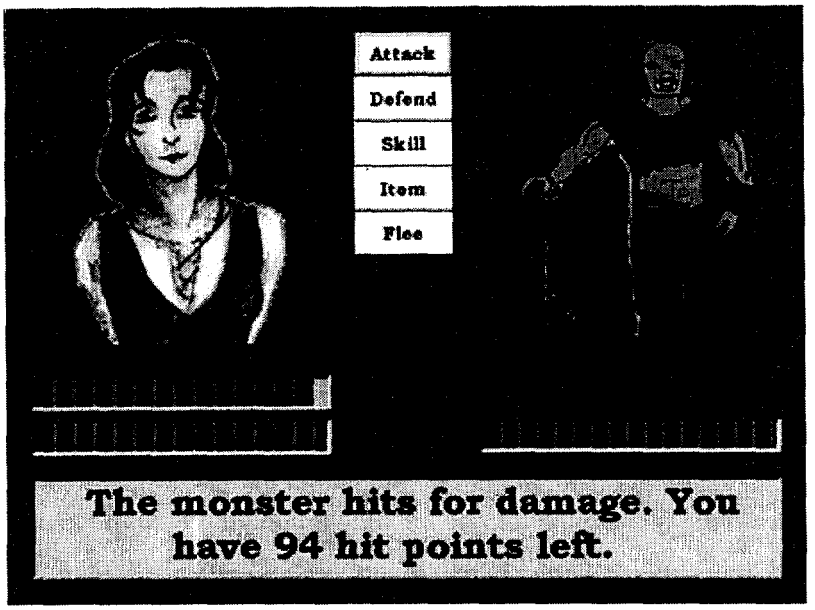
You have successfully carved a walking stick.

Okay

AttackForm

The following is a function by function analysis of the attack form. All functions involved in combat, from fleeing to actually hitting for damage, are contained within this form.

A picture of the **AttackForm**:



Archery

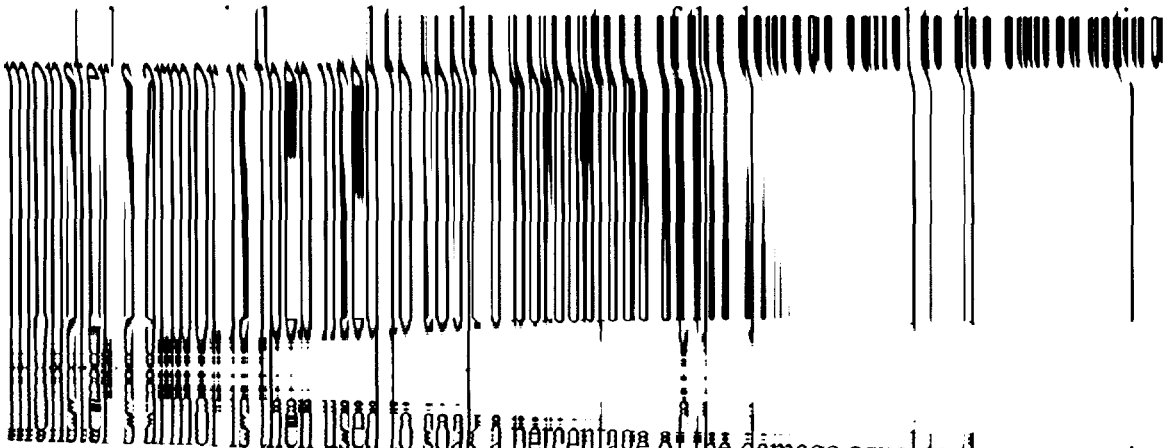
This function is used to determine the proficiency with the bow, the only ranged weapon in the game. The better the player is with the bow, the better the evade and hit bonuses the player receives for using that weapon are.

ArmorLore

ArmorLore is called at the beginning of the combat sequence. This checks the player's proficiency at wearing armor. Depending at the level of proficiency, the player receives a bonus to evade. If the check is failed, then the evade bonus is not applied and the skill is checked to see if it improves.

Attack

The attack function runs the combat for the player. It first checks to see if the player hits the creature. If the hit is failed, then the player's turn is over and the combat progresses onward. If the player does manage to beat the evade number of his opponent, then the player succeeds in hitting the monster and damage calculations begin. Damage is divided into three levels: light, medium, and heavy. The amount of damage done depends on bonuses to damage, the weapon wielded and the level of attack chosen. A light attack does half the damage of a medium attack while a heavy attack does approximately one and a half times as much damage as the medium attack. The



monster's armor is then used to soak a percentage of the damage equal to the armor rating of the monster. If the monster is killed control is passed to the **Killed** function.

AttackButton_Click

AttackButton_Click is the decision by the player to attack the monster. Chosen during the player's turn, it then activates the attack level submenu so the player can chose the level of attack he wishes to execute on the monster.

BlindFighting

At night, it is a little tougher to fight. **BlindFighting** negates the penalties the player suffers while fighting in the dark, providing a distinct advantage over the monsters that do not get the same advantages.

BluntWeaponsFighting

BluntWeaponsFighting determines the mastery of the use of weapons like maces. If the player uses such a weapon, then this skill check is performed. A successful check allows the player benefits to the number rolled while trying to hit the monster and the amount of damage done.

CheckMonFlee

CheckMonFlee is the heart of the monster's "artificial intelligence". It is from this function that monster makes its decisions as to what it will do during a round of

LightAttack_Click

The **LightAttack_Click** button enables the player to select the light level attack. It is passed control from the player options menu by clicking on the attack button there. It then passes control to **CheckFatigue** to ensure the player has enough fatigue to expend to perform the attack.

MediumAttack_Click

MediumAttack_Click is one of the choices from the from the attack submenu. It selects the middle level of attack that spends average fatigue and does average damage. Control is then passed on to **CheckFatigue** to determine if the player has the Fatigue points left to execute this level of attack.

MonFlee

MonFlee executes the monsters attempt to escape. The function is called from **CheckMonFlee** when the monster's hit points have fallen below the **FleePercent** statistic contained in the monster's data file. The function allows a 50 percent chance of escape. If the monster successfully meets the escape check, the player can choose to pursue the monster or let it escape. If the chooses to pursue the monster the Pursue function is called, otherwise the monster makes its getaway and combat ends.

MonPursue

MonPursue governs the monster's pursuit when the player tries to flee from combat. The function first checks the monster's NoFlee number, A number set to determine how often the monster will attempt to prevent the player from fleeing. If the check is successful, the monster attempts to block the player's attempts to escape. There is a 50 percent chance that the monster will block the escape. If the monster fails to meet the first check, or does not succeed in blocking the escape of the player, the player escapes and the combat cycle ends. There is a special case: if the monster's no flee equals eleven, there is no possibility of escape from combat.

MonsterAttack

This function governs the monster's non-special attacks. Like the player attack function, the first thing the monster function determines is if the monster hits in combat. If the monster connects successfully, it selects the level of attack based on the monster's attack percentages. The function then determines the amount of damage done to the player and calculates whether or not the player has died (when a player reaches zero hit points, they are dead).

MonsterSpecial

The **MonsterSpecial** function governs the special attack process. This function is called from **CheckMonFlee** if the monster has a special. The percentage likelihood of the monster using its special is then compared to a randomly generated number to determine if the monster does use its special. If this check is passed, the correct special is called upon and then executed. If the check fails, then the monster attack function is called and the monster takes its regular physical attack.

Parry

Parry is a defensive form of combat that allows for the player to mount an occasional counteroffensive if the monster happens to miss its attack. This counter has no chance of missing if successful. The damage done by the strike is moderate.

ParryCommand_Click

This function activates the parry skill. It is called from the skills submenu and calls the Parry function described above.

PlayerOption

PlayerOption allows the player to choose actions during combat. The function enables the player's option menu when the player has a turn in combat. The menu allows from the selection of four options: attack, defend, skills, and flee. Attack and skills provide ways of doing damage. Defend makes you harder to hit. Fleeing is the way the player can escape from battle. The player can choose any of these buttons and use them at any time during combat. After the selection is made, the appropriate functions are called.

Punch

This function executes the punch command when it is called from the skills submenu. The function first checks the amount of fatigue to ensure that there is enough to execute the attack. If there is not enough, the function returns to **PlayerOption** to allow for another choice of actions. If the player has enough fatigue, the punching action continues by performing a check to determine if the player connects with the attack. If the player hits the monster with the punch, damage is then calculated and the appropriate amount of fatigue is subtracted. In either a hit or miss case, the player's turn is increased by one and **CheckTurn** is called.

PunchCommand_Click

This command calls the Punch function. It is activated when the skills button is chosen. If the skill is unlearned, then the skill button cannot be used.

Pursue

The Pursue function is called from **MonFlee** if the player has chosen to block the monster attempting to flee. The player has approximately a 50 percent chance of blocking the monster, which allows the player to continue the fight. If this check fails, then the monster escapes and the combat ends.

RandomNumber

This function is the heart and soul of the combat system. It is from here that the number for every check and damage determination is created. This is done by seeding the random number generator with the system clock and then random numbers are generated whenever needed.

SkillButton_Click

This function is used when the skills option from the player's options is selected. When selected, it brings up the skills submenu. This allows the player to use any of the selected combat skills in battle. If the skills are unlearned, they are grayed out. This makes them unusable. For this reason, a cancel button was added. This returns you to the main options window.

ColdBreath

ColdBreath, like its twin **FireBreath**, is one of several special procedures that certain monsters use this form of direct attack. This attack, when it hits, does from 3- 15 points of direct damage to the player. Armor soaks no damage from a breath-based attack. Also, the player's chances to avoid the attack are lessened due to the wide area that the breath attack covers.

FireBreath

Firebreath is the identical twin of **ColdBreath**. It also is a wide area attack, which reduces the player's chance of evading the attack. Also, like **ColdBreath**, the damage is done directly to the player and no chance of the armor soaking the damage is included.

Paralyze

Paralyze is another special procedure used by certain monsters. This attack deals no direct damage to the player. However, a successful Paralyze attack puts the player in stasis for one to four rounds of combat action. This allows the monster a flurry of free attacks while the player sits helpless.

Hamstring

Hamstring is the devious attack of the brigand. This special not only deals damage to the player, but, also, reduces efficiency in a fight. The hamstring special deals a little damage but also robs the player of evade points.

Haymaker

A Haymaker is a massive physical attack used by some monsters to deal out massive amounts of damage. It is a powerful punch, which can knock the player off balance for a turn when it connects. This is a very effective weapon for the monsters that possess this attack.

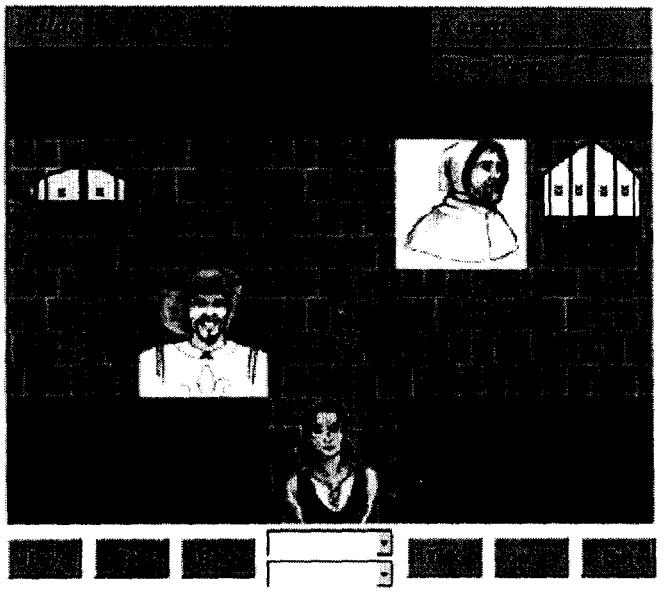
Poison

Most commonly used by some wild animals, Poison inflicts damage continually. If a monster poisons a player, the player's Poisoned flag is set to true. From that point until the end of the day, during any attack, the player takes damage on even numbered rounds due to the poison burning in the player's blood.

TownForm

This form is used to represent the several towns in the game that the player can enter. Here the player can talk to characters, buy and sell items, and rest.

A picture of the **TownForm**:



Global Variables:

String **TownState** to represent what state the player is in, for example, talking, begging, identify, etc.

Item array **BuyItemArray**(30) to represent the items available to buy at this particular town.

Integer **Index** to keep track of the next open position in the BuyItemArray

Add

Receives as a parameter an item, then adds it to the currentplayer's inventory and the equipment combo box on both the **TownForm** and the **GameForm**.

AddBuyItem

Adds an item to the array of available items in the town and displays the item in the combo box in the **BuyFrame**.

Appraising

First checks to see if the player has selected anything, then calculates a value for the item and displays it in a message. Also, gives the player a chance to improve his skill by calling the **GameForm.Improve_Skill** function.

Begging

First checks to see if the player can still beg this day (can only beg three times a day), then checks to see if the player has enough fatigue to beg. Calculates a modifier based on the player's social skill rating which is added to the player's skill rating when performing a skill check. If the player successfully passes the skill check, then the player receives either bread or money for his efforts, depending on his skill rating. If the player is unsuccessful, he is given a chance to improve his skill by calling the **GameForm.Improve_Skill** function. Whether or not he was successful, time passes and points are subtracted from his fatigue.

BuyCommand_Click

First checks to see if the player has selected an item. If so, the cost of the item is determined, and a discount is calculated based on the player's commerce and barter skill ratings. Then a check is made to see if the player has enough money and if so, the item is placed in his inventory. Otherwise an appropriate message is displayed.

CancelItemCommand_Click

Sets the **BuyFrame** to not visible and returns the **TownState** to "normal".

CancelSellCommand_Click

Sets the **SellFrame** to not visible and returns the **TownState** to "normal".

Character_Click

This is a very long function that handles many different options. It first determines what the **TownState** is, i.e. "talk", "identify", "begging", etc. Then it determines what the **CurrentTown** is, and based on this can determine which character was clicked on. Then an appropriate function is called, i.e. **Identify** or **Begging**. At the end of the function, the **TownState** is returned to "normal" and the mousepointer is set back to the default.

ExitCommand_Click

Resets the **CurrentTown** variable to –1 and unloads the **TownForm**.

Form_Load

This subroutine is more complicated than any of the other **Form_Load** functions because this form is used for several different towns, each of which has a different setup. This is where the pictures, labels, commands, and combo boxes are set up. Each one has a left, top, height, and width variable, which can be set in this subroutine. Inside the large picture box, 20 tiles are loaded which will contain a background display and possibly a picture in the foreground. The player's picture is also loaded here. Then a case statement is used to determine which town is currently being loaded. Depending on which town is being loaded, a different set of characters, inns, shops, and wells are loaded. At the end of the subroutine, the **TownState** variable is set to "normal", the skills combo box is updated with the player's available skills, and the items list is updated to reflect what the player currently has in his inventory.

Identify

This subroutine receives as a parameter a Character. A check is made to determine the player's ItemLore skill rating, and based on that, an appropriate message is displayed. If the player's ItemLore rating is less than thirty, a vague message will be given. If the player's ItemLore rating is greater than twenty-nine but less than sixty-five, a more descriptive message is given. If the player's ItemLore rating is greater than sixty-four, the most descriptive message is given. Lastly, the mousepointer is set back to the default, and the **TownState** is set back to "normal".

IdentifyCommand_Click

First checks to see if the **TownState** is already "identify". If so, it returns the **TownState** to "normal" and sets the mousepointer back to the default. Otherwise, it changes the **TownState** to "identify" and sets the mousepointer to an appropriate icon.

Items_Click

First makes sure that there is something selected in the items combo box. Then it checks to determine what the **TownState** is. If it is "eye" then the **TownState** is returned to "normal" and **GameForm.Identify** is called for the selected item. If it is "sell" then the SelectedItemLabel in the **SellFrame** is set to that item's name. Otherwise, the item's type is determined and an appropriate action taken. If the item is food, it is eaten. If the item is clothing or armor, it is worn, and if it is a weapon, it is wielded.

Performance

First a check is made to see if the player has already performed 3 times that day. If not, then a modifier is calculated based on the player's social skill. After making sure that the player has enough fatigue, a skill check is made using the player's performance skill rating plus the modifier. If the skill check is passed, a check is made to determine what range the player's performance skill is in. If the player's performance rating is less than 30, then the player will receive some bread, which is placed in his inventory after a message is displayed. If the player's performance rating is greater than thirty, then the player will receive some coins which are added to the player's money after a message is displayed. However, the player has a chance of receiving more coins if his rating is above sixty. A half-hour of game time is passed, fatigue is subtracted from the player's fatigue rating, and the player's performed value is incremented.

If the player fails the skill check, twenty minutes of game time is passed, fatigue is subtracted from the player's fatigue rating, and a message is displayed telling him that he was unsuccessful at performing. Then the player is given a chance to improve his performance and social skill ratings by calling the **GameForm.Improve_Skill** function.

Remove

Receives as a parameter an item, which is removed from the currentplayer's inventory and the equipment combo box on both the **TownForm** and the **GameForm**. Then the inventory is cycled through to remove the empty slot, keeping the inventory an exact copy of the equipment combo boxes.

PickPocketing

This subroutine first checks to see if the player has enough fatigue. Then a modifier is calculated if the character is one of several special characters that would react differently to pickpocketing. Then a skill check is performed using the player's pickpocketing skill rating plus the modifier. If the player passes the skill check, then a check is made to see what range the player's pickpocketing skill rating falls into. The higher the player's skill rating, the more money he will be able to steal. If the player fails the skill check, a check is made to see if his social skill rating is above ninety. If so, he escapes. Otherwise, the town guard will attack him. Then, he is given a chance to improve his skill by calling the **GameForm.Improve_Skill** function.

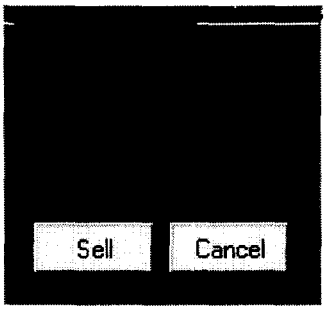
RestCommand_Click

First passes twelve hours of game time. Then, increases the player's fatigue and hit points and updates the progress bars accordingly.

SellCommand_Click

Displays the **SellFrame** and sets the **TownState** to "sell".

A picture of the **SellFrame**:



SellItemCommand_Click

First checks to make sure that there is an item selected, then checks to make sure the selected item is not one of the special items. Then, an extra bonus is calculated using the player's commerce and barter skill ratings. Next, a selling price is determined by considering the actual value of the item and the extra bonus previously calculated. Then the item is removed from the player's inventory and the **Update_Silver** subroutine is called.

Show_MessageBox

Displays a message box with the image and text passed to it.

Show_SpeechBox

Displays a speech box with the image and text passed to it.

Skills_Click

Makes a check to see which skill was selected, then calls an appropriate function or sets the **TownState**.

Update_Silver

Corrects the **SilverLabel** to reflect the current player's money amount.

Update_Skills

Checks to see what skills the player currently knows, then displays them in the skills combo box.

TalkCommand_Click

If the **TownState** is already set to "talk", then the **TownState** is set back to normal and the mousepointer set to default. Otherwise, the **TownState** is set to "talk" and the mousepointer is set to an appropriate icon.

Module

This is a section of the code that is accessible to all forms in the game. Since variables can not easily be passed from one form to another, global variables can be kept here and the information accessed or changed from any of the forms.

CurrentPlayer --- holds the information for the currently active player

ItemArray --- list of every item available in the game

CharacterArray --- list of every character in the game

CurrentMonsterNumber --- the number of the monster currently being used in combat

CurrentTown --- an integer representing the town that the player is currently in

PlayerType --- a type used in saving and loading player information

Pause --- a subroutine that allows the game to pause for a given number of seconds

Character Class

This is a class used to hold information about the characters in the game. There are fields for the character's name, picture, description, and speech.

Name --- holds a short name for the character

IDNumber --- an index for the array contained in the game; allows the character information to be accessed

Picture --- contains the filename for the character's picture

Description1 --- contains a short description of the character

Description2 --- contains a longer description of the character

Description3 --- contains a more detailed description of the character

Speech --- contains the message that the character will give to the player - a hint to where an item or further information is located

Also, in the class are **get** and **let** functions for each data field. These allow the data fields to be retrieved or set to a new value.

Item Class

Deciding how to handle item information was another big step. Since Visual Basic, our chosen programming language, does not handle classes and inheritance in the same manner and to the extent that C++ does, I had to revise the way I had originally intended to handle this information. I had wanted to create classes for armor, weapons, food, etc. which would all inherit from class item. Then, by creating the inventory and equipment lists as arrays of items, they could contain armor, equipment, or any combination of items.

However, being unfamiliar with classes in Visual Basic 5, and after reading that Visual Basic does not include inheritance that works in this manner, I decided to use a single class item with the following members:

Name	String
IDNumber	Byte
Picture	String
Description1	String
Description2	String
Description3	String
Weight	Byte
Height	Byte
Wear-Position	Byte
Type	Byte
Special1	Byte
Special2	Integer
Value	Integer

Name of Item

Short string to describe what item is.

IDNumber

A number used for locating the item in the ItemArray index.

Picture

The file name of the image for this item.

Description1

A short description of the item for use by players with a very low item lore rating.

Description2

A slightly longer description of the item for use by player's with a mid-range item lore rating.

Description3

A long description for player's with a high item lore rating.

Weight

The weight of the item in stones.

Height

The height of the item in hands.

Wear-Position

The place on the player's body that the item is worn. The following locations are available:

1	-	Head
2	-	Body
3	-	Feet
4	-	About Body
5	-	Wielded
6	-	Shield

Type

The type of the item. The following types are available:

1	-	Sword
2	-	Piercing Weapon
3	-	Blunt Weapon
4	-	Axe
5	-	Ranged Weapon
6	-	Armor
7	-	Clothing
8	-	Food
9	-	Light Source
10	-	Other

Value

The value of the item in silver pieces.

Monster Class

While working on the monster class, it was important to consider all of the possible things that a monster might do during combat. We had to think when the monster might attack, how it might attack, how strong it would be and when it would flee. The monster class is our attempt to take all these variables into consideration and use them to serve as a template for all of the monsters in the game.

Name	String
Total_HitPoints	Integer
Current_HitPoints	Integer
Fatigue	Byte
Picture	String
Armor	Byte
Evade	Byte
Damage	Byte
DamageDice	Byte
ToHit	Byte
ToDam	Byte
LightAttackPercent	Byte
MediumAttackPercent	Byte
FleePercent	Byte
NoFlee	Byte
HasSpecial	Boolean
SpecialAttackPercent	Byte
Special	Byte
Drift	Integer
Level	Byte
MonsterType	Byte

Name

This category contains the monster's name. It is saved as a string of characters.

Total_HitPoints

This is the total amount of life force that the monster possesses. This number helps in performing the calculations for determining if a monster will attempt to flee.

Current_HitPoints

Used to determine the amount of damage the monster has taken. Current_HitPoints starts out equal to the Total_Hitpoints statistic. As the monster takes damage, the damage is subtracted from the Current_HitPoints. The Current_Hitpoints, when compared to the Total_HitPoints, determines the if the monster will attempt to flee if it is less than the FleePercent.

Fatigue

The original intent was for the monster to use fatigue in the same way that it is by the players. However, due to time constraints, this statistic was not used.

Picture

This contains the file name of the picture of the monster. This is the picture that is used on the combat screen as the player fights the monster.

Armor

The monster's armor rating works in the same way as the player's armor rating works. It absorbs a percentage of the damage done to the monster equal to the armor rating.

Evade

The evade value determines how hard the monster is to hit. If the player's hit number is lower than the monster's evade, then the player misses the monster. So, the higher this statistic, the tougher the monster is.

Damage

The damage is the number that a random number is divided by as to provide a remainder between zero and that number. By adding one, the amount of damage rolled is halfway determined.

DamageDice

DamageDice is the second part used in determining the amount of damage dealt by the monster. The number received after Damage is calculated multiplies DamageDice. The ToDam bonus is then added. This number is then reduced by the appropriate amount, determined by the amount of armor the player is wearing. The remaining number is subtracted from the player's hitpoints.

ToHit

ToHit is added to the number determining if the monster hits the player. It the combination of the number and the ToHit is greater than the player's modified evade score, the monster hits the player. Otherwise the monster misses.

ToDam

ToDam is a damage bonus added on to the damage total after all of the other calculations have been done. This bonus damage provides the monster with a constant level of damage for the monster's otherwise very random attacks.

LightAttackPercent

The LightAttackPercent determines how often, on average, the monster will use a light attack. This number, with the MediumAttackPercent, determines how often the monster will use a heavy attack.

MediumAttackPercent

This number determines the likelihood of the monster mounting a medium level attack. Added to the LightAttackPercent, it provides the the percentage of the time a heavy attack is used.

FleePercent

This number is an integral part of determining at which point the monster will flee. This number is compared to the formula which involves Total_HitPoints and Current_HitPoints. If the number is less than the FleePercent, then the monster tries to escape.

NoFlee

This value reflects the amount of the time the monster will allow the player to try and escape. The values range from 0-11 a 0 means that the monster will never attempt to block your fleeing while a 10 means the monster will try very hard to stop you. An 11 is a special value that means the monster will not let you escape under any circumstances.

HasSpecial

This is a Boolean value. If the value is true, the monster has a special attack it can use. If it is false, the monster has no special attack.

SpecialAttackPercent

This number represents the percent of the time that the monster will use its special if it has one. If the monster has no special, this number equals zero.

Special

This number indicates the special that the player has. A 0 would be FireBreath. 1 equals Paralyze. A 2 is The Haymaker special. Hamstring is 3. Poison equals 4. Finally, 5 is ColdBreath.

Drift

Drift fell victim to a lack of time. Had there been more time, Drift would have caused the monster's attacks to become heavier or lighter after the monster had suffered more than a 50 percent hit point loss.

Level

The level of the monster is determined by the toughness of the monster. If the monster's level is high, its likelihood of being encountered is less.

MonsterType

There are four types of monsters in the game: animals (0), humanoids (1), giants (2), and monsters (3). Every monster created falls into one of these classes and is assigned the appropriate value.

Player Class

When designing the player class, we had to add a large number of elements to keep track of the many different variables. The following is a list of most of the variables we included.

String	Name	player's name
Byte	Age	player's age starting at 18
Boolean	Sex	male or female
Byte	Height	defaults set for male and female
Byte	Weight	defaults set for male and female
Integer	Money	amount of silver pieces
Byte	HitPoints	amount of hit points player currently has
Byte	Max_Hp	maximum amount of hit points the player can have
Byte	Fatigue	amount of fatigue points player currently has
Byte	Max_Fp	maximum amount of fatigue points the player can have
Byte	Armor	percent of damage player can soak from a monster's attack
Byte	Evade	ability to avoid monster's attacks
Byte	Agility	8 to 30
Byte	Strength	8 to 30
Byte	Fitness	8 to 30
Byte	Health	8 to 30
Byte	Intelligence	8 to 30
Byte	Personality	8 to 30
Item[100]	Inventory	list of items the player currently has
Byte	NextIndex	next available index in the item array
String	Picture	filename of the player's chosed picture
Boolean	Parry	true when player chooses parry from the skills list, false after monster's turn
Item	Body	item currently worn on the player's body
Item	AboutBody	item currently worn about the player's body
Item	Feet	item currently worn on the player's feet
Item	Wielded	item currently wielded by the player
Item	Shield	item currently used as a shield
Item	Head	item currently worn on the player's head
Integer	DamageBonus	bonus to the amount of damage done by the player to the monster
Integer	HitBonus	bonus to the check to see if the player hits the monster
Boolean	Poisoned	whether or not the player is currently poisoned
Boolean	Bandaged	whether or not the player has bandaged today

Byte	Performed	how many times the player has performed today
Byte	Begged	how many times the player has begged today

Also included were byte values for each of the player's skill ratings, which were too numerous and self-explanatory to mention here. See the player class code to view the specific skills.

A **set** and **let** function is included for each of the data fields, which allow the data fields to be accessed and altered.

Player Attributes

There are six attributes in the game: **strength, agility, intelligence, personality, health,** and **fitness**. These attributes affect different aspects of the player's abilities.

Strength, the physical strength of the player, improves the player's ability to cause damage to monsters.

Agility is how nimble the player is. It affects the player's ability to hit monsters. It also decreases the likelihood that a monster during combat will hit the player.

Health determines how healthy the player is. This is reflected in the total number of hit points that the player has.

Fitness indicates how rugged the player is and how physically fit the player is. It is a representation of the amount of physical exertion the player can endure. For this reason, the player's fatigue point total is determined by fitness.

Intelligence is how smart the player is. It influences how well a player is able to learn a new skill.

Personality indicates how well liked or hated the player is. It provides modifiers for actions involved in dealing with other people.

Message

This is a user control designed to display an image and a message. It is used when a player acquires an item or performs a skill.

Property Let LabelText

This function sets the label on the user control to the string that is passed to it.

Property Let MessagePicture

This function sets the image on the user control to the picture that is passed to it.

SpeechBox

This is a user control designed to display a picture and a message. It is used when the player is talking to a character in the game. A separate user control was created for this purpose so that the font size could be smaller, due to the length of the character's messages.

Property Let LabelText

This function sets the label on the user control to the string that is passed to it.

Property Let MessagePicture

This function sets the picture on the user control to the picture that is passed to it.

StatisticsWindow

This is a user control designed to display player information, such as the player's name, age, and money.

Property Let PlayerName
Sets the name label on the user control to the string sent to it.

Property Let PlayerAge
Sets the age label on the user control to the number sent to it.

Property Let PlayerHeight
Sets the height label on the user control to the number sent to it.

Property Let PlayerWeight
Sets the weight label on the user control to the number sent to it.

Property Let PlayerMoney
Sets the money label on the user control to the number sent to it.

Property Let PlayerEvade
Sets the evade label on the user control to the number sent to it.

Property Let PlayerArmor
Sets the armor label on the user control to the number sent to it.

Property Let PlayerAgility
Sets the agility label on the user control to the number sent to it.

Property Let PlayerStrength
Sets the strength label on the user control to the number sent to it.

Property Let PlayerFitness
Sets the fitness label on the user control to the number sent to it.

Property Let PlayerHealth
Sets the health label on the user control to the number sent to it.

Property Let PlayerIntelligence
Sets the intelligence label on the user control to the number sent to it.

Property Let PlayerPersonality
Sets the personality label on the user control to the number sent to it.

Property Let BackGroundColor
Sets the background color on the user control to the color constant sent to it.

Appendix I

Introductory Story

By

Christina Jacobs

This story was written after the game was designed as an introduction for new players. The version contained in the actual game introduction was edited by Jeff Hanks and Karen Woznick.

Vale had been sleeping rather soundly before he heard the crash. After he heard the crash, he was wide awake, no question about that. He was attempting to get comfortable and go back to sleep when he heard another crash. He was beginning to think that maybe he should get up and check things out. If he was living over a tavern he might expect sounds like that in the middle of the night, but he was living in a monastery and since all the other students had gone home for the harvest festivals, he was the only one there apart from the monks. Needless to say, it was not a place that produced crashes in the middle of the night.

Vale got up and put on his tunic and boots. He started heading for the door when he heard the clank of armor in the hallway outside. Now that was really an odd thing. Monks do not wear armor. Vale thought perhaps Brother Villi had been sneaking ale again and that was the cause of all the racket. The clanking stopped outside his door and he heard some voices. Well, if it was Brother Villi, he had company. Vale thought better of opening the door and ducked behind the nearby worktable. A few moments later, the door to his room opened and three armor clad warriors were visible. Vale was glad he hadn't walked out into the hallway earlier. One of the warriors held his torch out so that he could see the room. All three of them grunted. It sounded as if they were frustrated or maybe angry. They headed down the hallway and Vale breathed a sigh of relief. They hadn't seen him. He wondered who they were. He decided to follow them and find out.

Vale went to his trunk and opened the lid. He pulled out his breeches, his belt pouch and silver and his dagger. He dressed carefully. He planned on following the warriors for as long as it took to discover who they were, so he needed to be prepared. Vale wished he had a sword or at least a knife bigger than his small dagger. He hoped the warriors had not taken everything from the armory downstairs nor everything from the kitchen. The monastery only had an armory because it gave the monks a way to employ the villagers in hard times. The village around the monastery was very small though, so they were usually able to survive on whatever farming they did. Last time Vale had heard, the village was down to about 40 families.

Vale crept out into the hallway and wondered how far ahead the warriors had gotten. He didn't want to pass them up and get caught later on. He had to make sure to stay behind them. He heard some clanking far ahead and knew then that they had gotten about halfway down the hall. He wondered if there was time to go and check on the Abbot before he followed the warriors. He decided he would attempt it because the Abbot might know who these invaders were and why they had come to the monastery.

Vale headed down to the opposite end of the hall and then up the steps that lead to the tower. When he entered the tower he saw some of the Abbot's belongings spilled out onto the steps. The warriors must have been here then! He rushed up the steps to try and find the Abbot. Vale finally found him behind a couch. It looked as if he had been thrown there. Vale got some coverlets and pillows to try and make him more comfortable. Once the Abbot seemed to be more comfortable, and Vale knew he was in no great danger of dying (at least not in the next few hours) he began to question him. Vale wanted to know who the warriors were and what they wanted and why they would attack a helpless monastery. The answer the Abbot gave him was very surprising.

"This monastery has always hidden a great secret. The secret is so great that I had thought I was the only one that knew of it. I am the only on that knows of it here, but the warriors that have come also know of it, and they know of its great power. It is a power

that they want for themselves. But we cannot let them have it! You must find what they are looking for before they do! You will have an advantage. I can tell you where it is hidden. But first listen. After you have this first piece, you must go and find the others. They are scattered all over the land. Very few people will know where to find them. There may be some pieces that no one will remember where they are hidden. You must find them anyway. There are seven different items and when they are all put together, they can triumph over all evil. The invaders that have come here already have one item and they are looking for the second one here. You need to find the items before they do and then get the final item from them when the proper time comes. Now, I will tell you where to look for the one that is hidden here. Go into the library and find the largest book that you can see. Behind this book there is a small box. Inside the box there is a key. Take the key to the kitchen. Find the box in the pantry that holds the bacon and move the box to the side. There is a very small door in the wall which you can unlock. When you open the small door you will find a map. It may be in pieces by now and some parts may be faded. But it tells where the other objects might be hidden. No one knows if it is accurate. Also, there will be a key. Take this key to the basement and go to the farthest, darkest corner. There you will find a door that will lead you into a tiny room. Inside the room you will find a sword. It looks like any other sword, it might even look like a very poor , almost ruined sword. But that is the first object you will have. Good luck, and remember you must stay ahead of the warriors!"

Appendix II

The Code

```
' All function on this form were written by
'   Tim Zoch, unless otherwise noted.

D:  MonsterInit As Byte
Dim PlayerInit As Byte
Dim Evade As Byte
Dim AttackLevel As Byte
Dim Playerturn As Byte
Dim Monsterturn As Byte
Dim CurrentMonster As New Monster

Private Sub Archery()
'called by form load. if the player iw wielding a bow, then
    If CurrentPlayer.Wielded.ItemType = 5 Then
        ' increase player's evade by 15
        Evade = Evade + 15
        'check the skill,  if sucessful,
        If RandomNumber() <= CurrentPlayer.Archery Then
            If CurrentPlayer.Archery < 21 Then
                Evade = Evade + 5
                CurrentPlayer.Hitbonus = CurrentPlayer.Hitbonus + 5
            ElseIf CurrentPlayer.Archery > 20 And CurrentPlayer.Archery < 41 Then
                Evade = Evade + 7
                CurrentPlayer.Hitbonus = CurrentPlayer.Hitbonus + 7
            ElseIf CurrentPlayer.Archery > 40 And CurrentPlayer.Archery < 61 Then
                Evade = Evade + 10
                CurrentPlayer.Hitbonus = CurrentPlayer.Hitbonus + 10
            ElseIf CurrentPlayer.Archery > 60 And CurrentPlayer.Archery < 81 Then
                Evade = Evade + 13
                CurrentPlayer.Hitbonus = CurrentPlayer.Hitbonus + 13
            Else
                Evade = Evade + 15
                CurrentPlayer.Hitbonus = CurrentPlayer.Hitbonus + 15
            End If
        'if the check fails, try to improve the skill.
         Else
            CurrentPlayer.Archery = CurrentPlayer.Archery + GameForm.Improve_Skill
         End If
    End If
End Sub

Private Sub Armorlore()
'benifits the player for knowing his armor.
'it is  called from form load and preforms a skill check
'if the check is sucessful, the player gets the bonuses
    If RandomNumber <= CurrentPlayer.Armorlore Then
        If CurrentPlayer.Armorlore < 31 And CurrentPlayer.Armorlore > 15 Then
            Evade = Evade + 5
        ElseIf CurrentPlayer.Armorlore < 46 And CurrentPlayer.Armorlore > 30 Then
            Evade = Evade + 10
        ElseIf CurrentPlayer.Armorlore < 61 And CurrentPlayer.Armorlore > 45 Then
            Evade = Evade + 15
        ElseIf CurrentPlayer.Armorlore < 76 And CurrentPlayer.Armorlore > 60 Then
            Evade = Evade + 20
        ElseIf CurrentPlayer.Armorlore > 75 Then
            Evade = Evade + 25
        End If
'if not, try to improve the skill
    Else
        CurrentPlayer.Armorlore = CurrentPlayer.Armorlore + GameForm.Improve_Skill
```

```
    End If
End Sub

Private Sub Attack()
'   ck to see if player is wielding a bow, if he is try to subtract
'an arrow. if the player has no arrows, then call player option
    If CurrentPlayer.Wielded.ItemType = 5 Then
            Dim Index As Byte
            For i = 0 To CurrentPlayer.Nextindex - 1
                If CurrentPlayer.Inventory(i).Name = "arrow" Then
                 Index = i
                End If
            Next i
            If i = CurrentPlayer.Nextindex Then
                AttackMessages.Caption = " You have run out of arrows! "
                PlayerOption
                Exit Sub
            Else
                GameForm.Remove (Index)
            End If
      End If

'Player's attack on the monster. It first determines if the player hits the monster
'and if not, closes out the player's turn.  Otherwise, takes selected attack and
'determines the amount of damage done to the monster (and if the monster is dead)
If (RandomNumber() Mod 50 + 1 + CurrentPlayer.Hitbonus) < (CurrentMonster.Evade - (100 * Current
Monster.Fatigue / 200) * CurrentMonster.Evade) Then
        AttackMessages.Caption = "  You miss the monster.  "

        Pause (2)
        Playerturn = Playerturn + 1 'increment player turn
        CheckTurn                   'check for who has next turn
Else
    Dim temphp As Integer
    If AttackLevel = 1 Then
        temphp = CurrentMonster.Current_HitPoints - ((((CurrentPlayer.Wielded.Special1 * ((Rando
mNumber() Mod CurrentPlayer.Wielded.Special2) + 1) + CurrentPlayer.Damagebonus) / 2) * (100 - Cu
rrentMonster.Armor)) / 100)
        If temphp <= 0 Then 'if the monster has 0 or fewer hitpoints,
            MsgBox ("You have successfully killed the " + CurrentMonster.Name + ".")
            Killed       'then, he is dead, end combat.
        Else
            'otherwise, subtract from monster's hitpoints, and increment turns by one
            CurrentMonster.Current_HitPoints = temphp
            MonsterHitPoints.Value = CurrentMonster.Current_HitPoints
            If CurrentPlayer.Wrestling > 0 Then
                If RandomNumber() <= CurrentPlayer.Wrestling Then
                    Monsterturn = Monsterturn + 2
                Else
                    CurrentPlayer.Wrestling = CurrentPlayer.Wrestling + GameForm.Improve_Skill
                End If
            End If
            CurrentPlayer.Fatigue = CurrentPlayer.Fatigue - 5
            PlayerFatiguePoints.Value = CurrentPlayer.Fatigue
            Playerturn = Playerturn + 1
            CheckTurn
        End If
        ' the other two levels of attack work just like this one did.
    ElseIf AttackLevel = 2 Then
        temphp = CurrentMonster.Current_HitPoints - (((CurrentPlayer.Wielded.Special1 * (RandomN
umber() Mod CurrentPlayer.Wielded.Special2) + 1) + CurrentPlayer.Damagebonus) * (100 - CurrentMo
```

```
nster.Armor) / 100)
        If temphp <= 0 Then
            MsgBox ("You have successfully killed the " + CurrentMonster.Name + ".")
            Killed
        Else
            AttackMessages.Caption = " You have hit the monster. "
            CurrentMonster.Current_HitPoints = temphp
            MonsterHitPoints.Value = CurrentMonster.Current_HitPoints
            CurrentPlayer.Fatigue = CurrentPlayer.Fatigue - 10
            Pause (1)
            If CurrentPlayer.Wrestling > 0 Then
                If RandomNumber() <= CurrentPlayer.Wrestling Then
                    Monsterturn = Monsterturn + 2
                Else
                    CurrentPlayer.Wrestling = CurrentPlayer.Wrestling + GameForm.Improve_Skill
                End If
            End If
            PlayerFatiguePoints.Value = CurrentPlayer.Fatigue
            Playerturn = Playerturn + 1
            CheckTurn
        End If
    ElseIf AttackLevel = 3 Then
        temphp = CurrentMonster.Current_HitPoints - (((CurrentPlayer.Wielded.Special1 * ((Random
Number Mod CurrentPlayer.Wielded.Special2) + 1) * 2) + ToDamage) * (100 - CurrentMonster.Armor)
/ 100)
        If temphp <= 0 Then
            MsgBox ("You have successfully killed the " + CurrentMonster.Name + ".")
            Killed
        Else
            CurrentMonster.Current_HitPoints = temphp
            MonsterHitPoints.Value = CurrentMonster.Current_HitPoints
            If CurrentPlayer.Wrestling > 0 Then
                If RandomNumber() <= CurrentPlayer.Wrestling Then
                    Monsterturn = Monsterturn + 3
                Else
                    CurrentPlayer.Wrestling = CurrentPlayer.Wrestling + GameForm.Improve_Skill
                End If
            End If
            CurrentPlayer.Fatigue = CurrentPlayer.Fatigue - 15
            PlayerFatiguePoints.Value = CurrentPlayer.Fatigue
            Playerturn = Playerturn + 1
            CheckTurn
        End If
    End If
End If
End Sub

Private Sub AttackButton_Click()
    'selects the attack option for the player's turn, sets values on all other
    'options to false, activates the attack sub-menu.
    AttackButton.Enabled = False
    SkillButton.Enabled = False
    FleeButton.Enabled = False
    ItemButton.Enabled = False
    DefendButton.Enabled = False
    LightAttack.Visible = True
    MediumAttack.Visible = True
    HeavyAttack.Visible = True
End Sub

Private Sub Blindfighting()
```

```
'first, check to see if it is night time
    Dim temp As Integer
    If GameForm.timeclock1.Hour > 20 And GameForm.timeclock1.Hour <= 5 Then
'if it is, then subtract the following  from player and monster
        CurrentPlayer.Hitbonus = CurrentPlayer.Hitbonus - 4
        temp = Armor - 4
        If temp < 0 Then
            Armor = 0
        Else
            Armor = temp
        End If
        CurrentMonster.Armor = CurrentMonster.Armor - 4
        CurrentMonster.ToHit = CurrentMonster.ToHit - 4
        If CurrentPlayer.Blindfighting < 0 Then
'if the player has blindfighting, then preform a skill check
'if it succeeds, the losses for being in darkness are negated
            If RandomNumber() <= CurrentPlayer.Blindfighting Then
                Armor = Armor + 4
                CurrentPlayer.Hitbonus = CurrentPlayer.Hitbonus + 4
            Else
'if it fails, the player tries to improve blindfighting
                CurrentPlayer.Blindfighting = CurrentPlayer.Blindfighting + GameForm.Improve_Ski
ll
            End If
        End If
    End If
End Sub

Private Sub Bluntweaponfighting()
'   cks to see if the player is wielding a blunt weapon
'if they are and the skill  check is passed,  apply  the
'appropriate bonuses.
    If CurrentPlayer.Wielded.ItemType = 3 And RandomNumber() <= CurrentPlayer.Bluntweaponfightin
g Then
        If CurrentPlayer.Bluntweaponfighting < 21 Then
            CurrentPlayer.Hitbonus = CurrentPlayer.Hitbonus + 1
            CurrentPlayer.Damagebonus = CurrentPlayer.Damagebonus + 1
        ElseIf CurrentPlayer.Bluntweaponfighting > 20 And CurrentPlayer.Bluntweaponfighting < 41
 Then
            CurrentPlayer.Hitbonus = CurrentPlayer.Hitbonus + 2
            CurrentPlayer.Damagebonus = CurrentPlayer.Damagebonus + 2
        ElseIf CurrentPlayer.Bluntweaponfighting > 40 And CurrentPlayer.Bluntweaponfighting < 61
 Then
            CurrentPlayer.Hitbonus = CurrentPlayer.Hitbonus + 3
            CurrentPlayer.Damagebonus = CurrentPlayer.Damagebonus + 3
        ElseIf CurrentPlayer.Bluntweaponfighting > 60 And CurrentPlayer.Bluntweaponfighting < 81
 Then
            CurrentPlayer.Hitbonus = CurrentPlayer.Hitbonus + 4
            CurrentPlayer.Damagebonus = CurrentPlayer.Damagebonus + 4
        ElseIf CurrentPlayer.Bluntweaponfighting > 80 Then
            CurrentPlayer.Hitbonus = CurrentPlayer.Hitbonus + 5
            CurrentPlayer.Damagebonus = CurrentPlayer.Damagebonus + 5
        End If
     Else
'otherwise, try to improve blunt weapons fighting.
        CurrentPlayer.Bluntweaponfighting = CurrentPlayer.Bluntweaponfighting + GameForm.Improve
_Skill
    End If
End Sub

Private Sub Brawling()
```

```
'check for a a proficience
    If RandomNumber() <= CurrentPlayer.Brawling Then
        If CurrentPlayer.Brawling <= 50 Then
            Evade = Evade + 1
            CurrentPlayer.Hitbonus = CurrentPlayer.Hitbonus + 1
        Else
            Evade = Evade + 2
            CurrentPlayer.Hitbonus = CurrentPlayer.Hitbonus + 2
        End If
    Else
        CurrentPlayer.Brawling = CurrentPlayer.Brawling + GameForm.Improve_Skill
    End If
End Sub

Private Sub CheckMonFlee()
'The big function for the monster, this determines the monster's actions for the
'round of combat.
    If Monsterturn = 0 Then  'if this is the first turn, then,
        If CurrentMonster.HasSpecial = True Then 'does the monster have a special
            Call MonsterSpecial 'if so, call monster special
        Else ' if not,
            MonsterAttack ' call the monster's attack  function
        End If
    Else ' if this is any OTHER round ,
        If ((CurrentMonster.Current_HitPoints / CurrentMonster.Total_HitPoints) * 100) <= Curren
tMonster.FleePercent Then
            'if the hitpoints have dropped below the flee level for that monster, call
            Call MonFlee
        ElseIf CurrentMonster.HasSpecial = True Then 'otherwise if he has a special,
            Call MonsterSpecial
        Else
            MonsterAttack  ' if all else fails, attack
        End If
    End If
End Sub

Private Sub CheckFatigue()
    ' checks level of attack and if the the player has the fatigue left for that
    ' if not, recalls player option
    If AttackLevel = 1 And CurrentPlayer.Fatigue < 5 Then
     AttackMessages.Caption = "  You are too tired to do that.  "
     PlayerOption

     ElseIf AttackLevel = 2 And CurrentPlayer.Fatigue < 10 Then
     AttackMessages.Caption = "  You are too tired to do that.  "
     PlayerOption

    ElseIf AttackLevel = 3 And CurrentPlayer.Fatigue < 15 Then
        AttackMessages.Caption = "  You are too tired to do that.  "
        PlayerOption
    Else
        Attack
    End If
End Sub

P   ate Sub CheckTurn()
' if the player is poisoned,  then this executes to see
' if the player takes damage from the poison.

    Dim tempor As Integer
    If CurrentPlayer.Poisoned = True And Playerturn > 0 And Playerturn Mod 2 = 0 Then
```